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AUG 15 1984
GROUP 150
#24
AUG 24 1984

International Application of
Applicant: JEAN-YVES CHENARD ET AL : Group 153
Serial No.: 254,313/ : Examiner:
V. Hoke
Filed: April 15, 1981/ :

For: IMPROVEMENT IN THE STABILIZATION
OF VINYL HALIDE POLYMERS

DECLARATION OF JEAN-CLAUDE MENDELSON -- 37 CFR 1.131

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

I, JEAN-CLAUDE MENDELSON, do hereby declare that:

1. I am the Jean-Claude Mendelsohn who is an applicant in the above-identified application.
2. Together with Jean-Yves Chenard, I conceived and reduced to practice the broad idea of the generic invention described in French Patent Application No. 78 24863, filed August 29, 1978, whose priority is claimed in the above-identified application.
3. The generic invention of our conception is contained in the claims of our French Patent Application; an English translation of those claims is attached.
4. Our conception of the invention relates to an improvement in the use of metal compounds to stabilize halogen-containing resins; the improvement involves the addition of an ester of a mercapto alcohol and a carboxylic acid.

5. Our conception of the invention as it relates to tin involved organotin compounds broadly; this is seen from claims 4 and 11.
6. Our conception of the invention as it relates to organotin compounds embraced the field of useful organotin stabilizers; it was never our idea that certain types of organotin compounds, such as the halogen-containing organotin compounds, which were in themselves known to be useful stabilizers, were to be excluded from the scope of our conception.
7. Our conception of the scope of our invention included the obvious and well-known halogen-substituted organotin stabilizers; the work done on our behalf by Michel Foure confirmed that our invention was indeed effective when the organotin compound contains halogen.
8. Jean-Yves Chenard and I were fully aware of the work conducted by Michel Foure in the United States in connection with the combination of halogen-containing organotin compounds and mercaptoesters; this work was done in close consultation with us and represents an embodiment of our invention as described in French Patent Application 78 24863 and described and claimed in the above-identified application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section

1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

07 / 26 / 84
Date

JC Mendel.
Jean-Claude Mendelsohn

CLAIMS

1. Improvement in the stabilisation to heat, shock and light of resins containing a halogen, by the addition of one or more metal compounds, which consists in incorporating also into the resin an organic additive having a mercaptan function, characterised in that this additive is an ester of an organic acid, in which the mercaptan function is connected to a carbon atom of the alcohol residue of the ester.

2. Improvement according to claim 1, which consists in incorporating the ester additive containing a mercaptan function in the alcohol residue in the resin stabilised with one or more metal compounds, characterised in that the proportion of the additive is from 0.1 to 5% and preferably 0.5 to 2% by weight of the resin.

3. Improvement according to claim 2, characterised in that the additive, which can be formed by several esters, is added to the resin simultaneously with the one or more metal compounds or separately.

4. Improvement according to any of claims 1 to 3, in which the metal compound is a derivative of tin, antimony, zinc, magnesium or other alkaline earth metal or an alkali metal.

5. Improvement according to any of claims 1 to 4, in which the resin includes an epoxide, a phosphite and/or an anti-oxidant.

6. Stabiliser additive for carrying out the improvement according to any of claims 1 to 5, characterised in that it is of the type RCOO-R'SH , where R is an alkyl or alkenyl containing at least two carbon atoms and preferably 8 to 18C, or an aryl or aralkyl, the R group possibly carrying a second carboxylic group or a second group -COOR'SH , while R' is a C_1 to C_{18} alkylene which can carry one or more -OH .

7. Additive according to claim 6, characterised in that RCOO- is a fatty acid residue, in particular caprylic, perlargonic, capric, undecanoic, lauric, myristic, palmitic or stearic.

8. Additive according to claim 6, characterised in that the group RCOO- derives from an aliphatic diacid, in particular succinic, adipic or dioleic or an aromatic diacid, particularly phthalic.

9. Additive according to any of claims 6 to 8, characterised in that the group -R'SH is derived from a C₂ to C₆ mercapto alkanol, in particular 1-mercapto-ethanol-2, 1-mercapto-propanol-3, 1-mercapto-2-hydroxy-propanol-3 or 1-mercapto-butanol-4.

10. Additive according to claim 9, characterised in that it comprises calcium stearate and mercapto-ethyl stearate.

11. Additive according to claim 9, characterised in that it comprises an organic tin compound and mercapto-ethyl stearate.

12. Additive according to claim 9, characterised in that it comprises antimony tri-mercaptide and mercapto-ethyl stearate.

13. A plastic mass of polyvinyl chloride or of modified polyvinyl chloride, stabilised by the process according to any of claims 1 to 5.